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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,632	10/18/2001	N. Kutty Nair	839-1060	7028

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EXAMINER	
JOHNSON, JONATHAN J	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/981,632	Applicant(s) NAIR ET AL.	
	Examiner Jonathan Johnson	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,9 and 13-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9 and 13-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 9, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matthews et al. (5,986,234). With respect to Claims 1 and 13-14, Matthews et al. teach a method of cleaning a machine component using a laser beam (abstract) by programming a controller coupled to a laser source of the laser beam for controlling the laser source to perform laser ablation (Figure 7, Item 78 and column 12, lines 15-24) where the controller accesses a database having a laser power level data corresponding to various machine components; and inputting to the controller regarding machine component to be cleaned (col. 3, ll. 5-15 and col. 2, ll. 60-63); and determining the laser power level corresponding to the machine component by interrogating the database to determine a laser power level corresponding to the machine component (col. 11, ll. 60-65); and directing the laser beam at the machine component surface for vaporizing surface contaminants and coatings deposited on said surface without changing base material properties of said machine component (column 2, lines 50-65 and Figure 8, beam); and collecting vaporization data (col. 12, ll. 19-21); and comparing the collected vaporization data with the machine component data to cease vaporization of the surface by the laser beam (col. 11, ll. 60-65); where the machine component data consists of machine component material composition

(i.e. reflectivity of the material, which the examiner interprets as being a surface property of the material composition, in col. 12, ll. 10-12). While Matthews teaches programming his controller with reflectivity set points (col. 12, ll. 19-21), the laser termination set points (col. 11, ll. 65), and the laser energy amounts with respect to the material to be processed (col. 11, ll. 60-65 and col. 2, ll. 60-63 and col. 3, ll. 7-14) as part of the controller's program's database, Matthews does not teach incorporating multiple set points based on different types of surfaces into the program's database. Matthews teach using the laser to remove coatings from various materials (col. 1, ll. 20-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the control program of Matthews to incorporate multiple set points based on different types of surfaces into the program's database in order to decrease the amount of set-up time an operator requires at a job site (see Matthews col. 3, ll. 1-15).

With respect to Claim 2 and 15, the teachings of Matthews et al. are the same as relied upon in the rejection of Claim 1. Matthews et al. teach coupling the controller to a computer system having a processor and a database (column 12, lines 18-21); loading the database with machine component data and corresponding laser power related data for ablating surface contaminants or coatings from the surface (column 12, lines 15-24 and column 2, lines 50-57); providing a detector to monitor the ablation of surface contaminants or coatings (figure 8, item 86), and provide feedback data to the computer system (column 12, lines 15-20); comparing the feedback data with predetermined data to determine progress of ablation (column 12, lines 18-20); and controlling the laser source depending on the comparison step (column 12, lines 19-20), where the machine component data consists of machine component material composition (i.e.

reflectivity of the material, which the examiner interprets as being a surface property of the material composition, in col. 12, ll. 10-12)

With respect to Claim 3, the teachings of Matthews et al. are the same as relied upon in the rejection of Claim 1. Matthews et al. teach disposing vapors generated during laser ablation (figure 8, item 90).

With respect to Claim 9, Matthews et al. teach a laser-based method for cleaning a machine component by programming a controller coupled to a laser source of the laser beam for controlling the laser source to perform laser ablation (Figure 7, Item 78 and column 12, lines 15-24) where the controller accesses a database having a laser power level data corresponding to various machine components; and inputting to the controller regarding machine component to be cleaned (col. 3, ll. 5-15 and col. 2, ll. 60-63); and determining the laser power level corresponding to the machine component by interrogating the database to determine a laser power level corresponding to the machine component (col. 11, ll. 60-65); controlling a laser source to apply a laser beam for performing laser ablation (column 12, lines 15-20); directing the laser beam towards a component surface for vaporizing surface contaminants or coatings deposited on the component surface without changing base material properties of the component (column 2, lines 60-65); communicatively coupling a computer system having a processor and a database to the controller (column 12, lines 10-25); monitoring ablation process of the component using a detector, the detector being disposed adjacent to the component (figure 7, item 76); receiving feedback data from the detector at the computer system (column 12, lines

10-25); comparing the feedback data with predetermined data in a comparator to determine progress of ablation (column 12, lines 10-25); and controlling the laser source depending on the comparison step (column 12, lines 10-25). While Matthews teaches programming his controller with reflectivity set points (col. 12, ll. 19-21), the laser termination set points (col. 11, ll. 65), and the laser energy amounts with respect to the material to be processed (col. 11, ll. 60-65 and col. 2, ll. 60-63 and col. 3, ll. 7-14) as part of the controller's program's database, Matthews does not teach incorporating multiple set points based on different types of surfaces into the program's database. Matthews teach using the laser to remove coatings from various materials (col. 1, ll. 20-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the control program of Matthews to incorporate multiple set points based on different types of surfaces into the program's database in order to decrease the amount of set-up time an operator requires at a job site (see Matthews col. 3, ll. 1-15).

Response to Arguments

Applicant argues Matthews does not teach a database that stores machine component information and corresponding information on laser power level or machine surface condition data, or of interrogating the database to select the power level and/or surface condition. The examiner disagrees. First, with respect to the "database" claim limitation, during patent examination, the pending claims must be "given the broadest reasonable interpretation." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541,

550-51 (CCPA 1969). In the instant case, giving the term its broadest reasonable interpretation, the examiner interprets a database to be an array of values, which the examiner believes the computer program of Matthews satisfies as Matthews teaches surface reflectivity set points (col. 12, ll. 19-21), the laser termination set points (col. 11, ll. 65), and the laser energy amounts with respect to the material to be processed (col. 11, ll. 60-65 and col. 2, ll. 60-63 and col. 3, ll. 7-14) are part of the controller's program. That is, it is the examiner's position that the database is part of the overall control program loaded into the controller.

Matthews teaches the "loading the database with turbine or generator component data" claim limitation when he states "as the surface is cleaned the reflected signal [i.e., the amount of light reflected and scattered from the surface] will indicate that [to] the control unit [which will then instruct the laser to] move the beam to the next part of the surface" (Matthews, col. 12, ll. 18-20). That is, Matthews teaches the controller is programmed with the cleaned surface data of the generator [i.e., boiler, which is a generator of steam or energy, in Matthews, col. 3., ll. 10-13] so that the controller can determine via the amount of light reflected from the surface of the generator when the surface is cleaned so that the laser can move on to the next part of the generator.

The examiner notes that this interpretation is consistent with applicant's specification. Although applicant's specification does not explicitly define the "turbine or generator component data" claim limitation, applicant's specification does list a variety of information that can be programmed into the controller, such as the surface properties of the generator and material composition (applicant's specification, section 22). Applicant's specification goes on to explain that the listed examples are not exhaustive of the surface properties that can be programmed into

the controller (applicant's specification, section 22). In the instant case, Matthews programs his controller with the cleaned surface data of the generator so that the controller can determine whether the surface of the generator is cleaned.

Matthews teaches the "loading the database with corresponding laser power related data" claim limitation when he states that the controller is used to "control the amount of energy [i.e. the intensity of the laser beam] delivered to the surface" (Matthews, col. 11, ll. 61-65 and col. 12, ll. 9-11) via a feedback subroutine (Matthews, col. 11, ll. 61-65). Furthermore, not only does the feedback subroutine control the amount of energy delivered to the surface, but it also "shut[s] the laser down if the [programmed] signals exceed a predetermine[d] threshold" (Matthews, col. 12, ll. 18-20). Because Matthews teaches the controller is programmed to control the amount of energy delivered to the surface and to shut down the laser if it exceeds a predetermined threshold, the examiner believes that the "loading the database with corresponding laser power related data" claim limitation is satisfied.

The examiner notes that this interpretation is consistent with applicant's specification. Although applicant's specification does not explicitly define the "corresponding laser power related data" claim limitation, applicant's specification does explain that the laser power related data can include power (i.e., intensity) and duration of the laser beam (applicant's specification, section 21). This is consistent with the examiner's interpretation as the examiner uses Matthew's teaching of controlling the amount of energy (i.e. intensity) via the control system to satisfy the claim limitation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 703-308-0667. The examiner can normally be reached on M-Th 7AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.

jj Kiley Stoner AU 1725
Kiley Stoner 3/3/04